



MUTHAYAMMAL ENGINEERING COLLEGE

(An Autonomous Institution)

(Approved by AICTE, New Delhi, Accredited by NAAC & Affiliated to Anna University)

Rasipuram - 637 408, Namakkal Dist., Tamil Nadu.

Department of Information Technology Question Bank - Academic Year (2020-21)

Course Code & Course Name : 19ITC09 & Operating Systems

Name of the Faculty : Mrs.P.Bhuvaneshwari

Year/Sem/Sec : II / IV / -

Unit-I: Introduction

Part-A (2 Marks)

1. Define Operating Systems.
2. List the operating system components.
3. Write the Real-Time Systems .
4. Differentiate Single Processor System and Multiprocessor Systems.
5. What is system call ? and its types
6. Define contrast DMA and Cache Memory.
7. State the Spooling and Batch processing .
8. Define Clustered System.
9. State the advantages of Distributed Systems
10. What is meant by context switch? .

Part-B (16 Marks)

1. Discuss details about operating operations and components. (16)
2. Explain the Operating System Structures. (16)
3. Describe the (a)Time Sharing Systems(b)Multiprogramming Operating System. (8)
Describe three general methods for passing parameters to the OS with example (8)
- 4.(i). Briefly explain various management of operating systems and their responsibilities (8)
(ii). Explain details about Classes of Operating Systems (8)
5. Explain details about Memory management techniques (16)

Unit-II : Process Management And Threading

Part-A (2 Marks)

1. A Define race condition.
2. What is semaphores?
3. Define busy waiting and spinlock.
4. Differentiate a thread and process.
5. Define ready queue
6. List the scheduling algorithms.
7. State the inter process communication
8. Define multi level queue
9. What is the difference between preemptive and non-preemptive scheduling
10. Differentiate single threaded and multi-threaded processes?

Part-B (16 Marks)

1. Explain in detail about Overview of Threads–Multithreading models - Threading issues (16)
2. Describe the difference among short-term, medium-term and long term scheduling with suitable examples. (16)
3. Explain details about FCFS,SJF,Round -Robin scheduling algorithm (16)
4. Discuss the evolution of virtual machines &how virtualization could be implemented in OS (16)
- 5.(i). Explain the process concepts and thread. (8)
(ii) Explain the details about Process Scheduling (8)

Unit-III : Process Synchronization And Deadlocks

Part-A (2 Marks)

1. List out the methods for handling deadlock.
2. What is resource allocation graph and give an example.
3. Define monitor. What does it consists of?
4. Define the dispatch latency
5. Define Mutex Locks.
6. Explain the types of Semaphores?
7. Show that mutual exclusion may be violated if the signal and wait operations are not executed atomically? Describe.
8. Define hold-and-wait
9. What is meant by binary semaphore?
10. Explain the algorithms available for deadlock avoidance?

Part-B (16 Marks)

- 1.(i) Describe the Deadlock methods & Methods for Handling the deadlock. (8)
(ii) Comparison between detection, Prevention and Avoidance methods of handling deadlock. . (8)

2. Explain the techniques for deadlock detection. (16)
3. Describe critical section? Specify the requirements, for a solution to the critical section problem (16)
- 4 Explain Banker's algorithm for deadlock avoidance in detail with an example (16)
- 5.(i) Describe the process synchronization concept (8)
- (ii) Explain the classification of authentication function in detail. (8)

Unit-IV : Memory Management

Part-A (2 Marks)

1. Define virtual memory? Mention its advantages.
2. Differentiate the significance of LDT and GDT in segmentation?
3. Define demand paging in memory management. What are the steps required to handle a page fault in demand paging.
4. What is meant by Belady's anomaly?
5. Define overlay.
6. State what is required to support dynamic allocation in contiguous memory allocation.
7. What do you mean by page fault?
8. Differentiate internal and external fragmentation.
9. Why should we use virtual memory?
10. What is memory compaction?

Part-B (16 Marks)

1. Discuss the about of Management Strategies (16)
2. Explain the operational description Virtual Memory (16)
3. Consider the following page reference string (16)
1,2,3,4,5,3,4,1,6,7,8,7,8,9,7,8,9,5,4,4,5,3. How many page faults would occur for the following replacement algorithms? Assume four frames are initially empty. i)LRU replacement ii)FIFO replacement iii)Optimal replacement
4. Explain how logical address is translated into physical address using paging mechanism (16)
& Write short notes on memory mapped files
- 5.(i) How to solve the fragmentation problem using paging (8)
- (ii) Explain swapping and contiguous memory allocation (8)

Unit-V : System And Storage Management

Part-A (2 Marks)

1. What are the various layers of a file system?
2. Define seek time and latency time.
3. What is File Organization? What is File Volatility?
4. What is sector sparing?
5. What is the responsibility of kernel in LINUX OS
6. Define the function of caching only serves.

7. Define rotational latency
8. Write the advantages and disadvantages of SSTF.
9. Identify the two important functions of Virtual File System (VFS) layer in the concept of file system implementation.
10. Mention the major attributes of a file.

Part-B (16 Marks)

1. Explain briefly about File System Implementation & File System Interface (16)
 2. Summarize the technical details of Mass Storage Structure & Windows, Linux and Android operating Systems. (16)
 3. Compare the functionalities of FCFS, SSTF, CSAN and C-LOOK disk scheduling algorithms with a examples for each.. with neat diagram. (16)
 4. Discuss the different file allocation methods with suitable example. (16)
 5. Explain the function of caching only serves (8)
- Explain the design principles of Linux system (8)

Course Faculty

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